

REMARKS

Claims 1 and 6-11 are pending. No new matter has been added by way of the present amendment. For instance, claim 1 has been amended to include subject matter taken from claims 5 and 12. Additionally, claims 2, 4, 5, 12 and 13 have been cancelled. Thus, no new matter has been added.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues Under 35 U.S.C. §103(a)

The Examiner has rejected claims 1-13 under 35 U.S.C. §103(a) as being obvious over the combination of EP 1 004 930 (hereinafter referred to as EP '930), Matsumoto, U.S. Patent No. 5,958,668 (hereinafter referred to as Matsumoto '668), and Hayashi, U.S. Patent No. 4,273,723 (hereinafter referred to as Hayashi '723).

The Examiner has also rejected claims 1-13 under 35 U.S.C. §103(a) as being obvious over the combination of EP 0 962 812 (hereinafter referred to as EP '812), Matsumoto '668 and Hayashi '723.

Applicants respectfully traverse each of the above rejections.

The Present Invention and Its Advantages

The present invention relates to a heat-developable image recording material comprising a support; a photosensitive silver halide; a reducing agent for a silver ion; a

binder; and a non-photosensitive organic silver salt grain, wherein the non-photosensitive organic silver salt grain has:

- 1) substantially no silver stearate;
- 2) a length/width ratio of 1 to 9;
- 3) an aspect ratio of 1.1 to 30;
- 4) an equivalent-sphere diameter of 0.05 to 1 μm ;
- 5) a content of silver behenate that is 97 to 100 mol% per mol of the non-photosensitive organic silver salt; and
- 6) a content of silver arachidate that is 3 mol% or less per mol of the non-photosensitive organic silver salt.

As recited in claim 1, the non-photosensitive organic silver grain is defined by six particular requirements. For instance, claim 1 requires that the non-photosensitive organic silver salt grain have substantially no silver stearate, a content of silver behenate that is 97 to 100 mol% per mol of the non-photosensitive organic silver salt, and a content of silver arachidate that is 3 mol% or less per mol of the non-photosensitive organic silver salt. However, the prior art is completely silent as to these particular limitations. Further, not only is the prior art silent, but the prior art also fails to recognize the advantages concerned with the presently claimed subject matter.

For instance, the cited references completely fail to suggest or disclose that the content of silver arachidate can cause negative impact on the effects of the present

invention. Further, as shown in the working examples of the present application, specific unexpected effects concerning image preservability are expressed by maintaining the silver behenate content at 97 to 100 mol% or more. These effects are unexpected in view of the cited references. In this regard the Examiner is respectfully requested to refer to inventive Samples 1D, 1J, 1N and 2-4 concerning the "Change in Percentage of Image Preservability" being 0%.

Distinctions between the Present Invention and the Cited Art

The two main references cited by the Examiner are EP '930 and EP '812. The Examiner has supplemented these references with the disclosures of Matsumoto '668 and Hayashi '723. However, whether these references are viewed individually, or in combination, there exists no *prima facie* case of obviousness.

A close look at EP '930 and EP '812 reveals numerous deficiencies, especially concerning the contents of silver behenate, silver arachidate, and silver stearate. For instance, silver behenate is mentioned in EP '930 and EP '812. However, behenic acid is produced from fatty acids derived from plants, naturally containing as impurities fatty acids with a chain length different from behenic acid, such as stearic acid and arachidic acid. Thus, behenic acid always contains silver stearate and/or silver arachidate impurities in higher amounts if it is not subjected to a further purification process. The presence of the impurities in behenic acid is confirmed by the composition of commercially available product, such as the two products called "behenic acid"

provided in the Internet catalogue of Thornley Company, submitted on July 13, 2004 and October 31, 2003, additional copy of which is attached. According to the specification these products consist of a mixture of 70 and 90 mol% of behenic acid and 30 and 10 mol% of arachidic acid, respectively. Thus, the commercially available products do not contain behenic acid in an amount of 97 to 100 mol%, silver arachidate in an amount of 3 mol% or less and substantially no silver stearate so that further purification is required to obtain a fatty acid composition suitable for the preparation of organic silver salt grains according to the present invention.

In fact, there is no discussion in EP '930 or EP '812 that reducing the content of silver stearate and silver arachidate in the organic silver salts is desirable. In contrast thereto, silver stearate and silver arachidate are cited as preferred organic salts.

According to the examples of EP '930 ([0138]-[0140]), the organic silver salts are prepared from mixtures of silver behenate, arachidic acid and stearic acid. The behenic acid content in the organic silver salt powders A and B of EP '930 is 42 and 85 mol%, the content of silver arachidate 34 mol% and 12 mol%, and the content of silver stearate is 24 mol% and 3 mol%, respectively. Thus, EP '930 does not disclose a preferred amount of substantially no silver stearate, 3 mol% or less for the amount of silver arachidate, and 97 to 100 mol% for the amount of silver behenate in the organic silver salts.

EP '812 describes the preparation of fatty acid silver salts by reacting silver with sodium behenate ([0221]). The behenic acid used in the production of the organic silver

salts of EP '812 (trade name Edenor C22-85R, [0270]) has a content of behenic acid of 88 mol%, a content of stearic acid of 2 mol% and a content of arachidic acid of 5.7 mol%. Therefore, the behenic silver salt grains of EP '812 do not comply with the definition of the organic silver salt grains recited in claim 1 of the present application having a content of silver behenate in the range of 97 to 100 mol%, substantially no silver stearate, and 3 mol% or less of silver arachidate.

In summary, the present invention, in particular relating to a heat-developable image recording material, having non-photosensitive organic silver salt grains which have substantially no silver stearate, have a content of silver behenate that is 97 to 100mol% and a content of silver arachadate which is 3 mol% or less, are not suggested or disclosed by EP '930 or EP '812. Moreover, the other references of Matsumoto and Hayashi fail to cure these deficiencies. These deficiencies alone defeat any *prima facie* case of obviousness.

Also, the differences between the present invention and the photosensitive materials of the references, for instance EP '930 or EP '812 are further exemplified by previously submitted evidence. For instance, the Examiner is requested to refer to the Declaration pursuant to 37 C.F.R. §1.132 of Mr. Takayoshi Oyamada, submitted on October 31, 2003, an additional copy of which is included herewith.

A comparison of the results represented of the Declaration clearly shows that the "Change in Percentage of Image Preservability" drastically increases (from 25% for a

silver stearate content of 1 mol% to about 45% on average for a silver stearate content of 2 mol%, or from 13% for a silver stearate content of 0.5 mol% to about 45% on average for a silver stearate content of 2 mol%), reaching a problematic level for practical application, when the content of stearic acid exceeds 1 mol% (note that claims require “substantially no silver stearate”). The present inventors assume that the deterioration of the image preservability is caused by a dissolved product due to stearic acid present in the layer after thermal development in an amount higher than 1 mol%. The strong correlation of the silver stearate content to the image preservability of the recording material is not known in the state of the art and is not deducible from EP '930 and EP '812. Therefore, one of skill in the art is given no motivation to use a behenic acid in the production of the silver salt grains, wherein the silver stearate content was reduced to such that substantially no silver stearate is present. Using silver behenate grains with substantially no silver stearate content as claimed in claim 1 of the present application results in surprising and advantageous properties of the claimed heat-developable photosensitive material of the present invention.

Thus, even if the Examiner has hypothetically established a *prima facie* case of obviousness, a point not conceded by Applicants, the unexpectedly advantageous properties according to the present invention compared with the cited art, rebut any hypothetical *prima facie* case of obviousness.

Moreover, the other references of Matsumoto '668 and Hayashi '723 fail to cure any of the deficiencies of the primary references. Moreover, even if Matsumoto '668 and Hayashi '723 hypothetically disclose amounts of silver behenate as apparently claimed, a point not conceded by Applicants, other distinguishing characteristics still exist, for instance, the Examiner is referred to the amounts of silver stearate and silver arachidate. Accordingly, Applicants summarize by submitting that the Examiner has failed to establish a *prima facie* case of obviousness. Reconsideration and withdrawal of the outstanding rejection are respectfully requested.

Request for Interview

In order to further explain the patentability of the present claims, Applicants hereby request an interview to be conducted with the Examiner. Applicants' representative will contact the Examiner to schedule a suitable time for the interview.

If the Examiner has any questions or comments, please contact Craig A. McRobbie (Registration No. 42,874) at the offices of Birch, Stewart, Kolasch and Birch, LLP.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application, and the required fee of \$1020.00 is attached hereto. If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge

Application No.: 10/025,455

Docket No.: 0649-0814P

payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,



By  #47.874

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Attachments: Excerpt from Thornley Company internet catalogue
Declaration under 37 C.F.R. §1.132